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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/210,055	12/11/1998	JOHN DAVID MILLER	884.055US1	6122

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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
WANG, JIN CHENG	

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/210,055	MILLER, JOHN DAVID	
	Examiner	Art Unit	
	Jin-Cheng Wang	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20,22,24,26,28,32,34 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20, 22, 24, 26 28, 32, 34, and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on 08/09/2004 has been entered. Claims 20, 22, 24, 26 28, 32, 34, and 37 are pending in the application.

Response to Argument

The affidavit filed on 08/09/2004 under 37 CFR 1.131 is sufficient to overcome the Watanabe et al. U.S. Patent No. 6,329,988 reference. However, Applicant's arguments with respect to claims 20, 22, 24, 26 28, 32, 34, and 37 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20, 22, 24, 26 28, 32, 34, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata U.S. Patent No. 5,222,203 (hereinafter Obata).

Re claim 20, Obata teaches selecting a mode, the mode is FRONT-ONLY, BOTH SIDES, or BACK-ONLY (Depending on relationship among the viewpoint vector, the light source vector and the normal vector of the object surface, FRONT-ONLY, BOTH SIDES, or

BACK-ONLY is judged; column 7), determining a viewing angle (let the angle of the opposite light source vector –VL with respect to the reference x-axis of an arbitrary reference frame be denoted by va_alpha), determining an object angle (the angle between the normal vector of the object surface with respect to the reference x-axis of an arbitrary reference frame; denoted by oa_beta), calculating a theta, theta equals the viewing angle minus the object angle plus pi (the angle between the normal vector VN and the light source vector VL is the angle theta = pi – oa_beta + va_alpha; column 7), assigning a function of theta to alpha, if the mode is FRONT-ONLY or BOTH-SIDES (the alpha being the cosine function of theta; see column 6), assigning a function of theta minus pi to alpha, if the mode is BACK ONLY (cosine(va_alpha – oa_beta) = cosine (|va_alpha|+|oa_beta|); column 6-7); comparing alpha to zero; assigning zero to alpha, if the mode is FRONT ONLY and alpha is less than zero (in this case, the inner product between the normal vector of the object surface and the light source vector or cosine(pi – oa_beta +va_alpha) should be positive; column 6-7); assigning zero to alpha, if the mode is BACK ONLY, and alpha less than zero; assigning minus alpha to alpha, if the mode is BOTH-SIDES, and alpha is less than zero (column 6-7). In other words, Obata discloses a method for displaying a translucent object or an opaque object on a display screen comprising a step of displaying a translucent object by calculating the color intensity. The color intensity comprises an ambient light component and the diffused transmitted light component, which is in relation to an angle made between a normal vector of the object surface and a light source vector as being at normal to the light surface, the diffused transmitted light coefficient, and the intensity value corresponding to the light source. The angle of incidence of the incident light source being over the range of 0 to pi, so that the object develops its own color intensity on the basis of the diffused

transmitted light coefficient Ktr, the intensity value corresponding to the incident light from a light source. The intensity or brightness of the image object is described by the color and/or transparency values. Obata teaches that, the actual display color of the image object is determined by **mixing the color of the object and the color of background**, based upon the transmissivity of the translucent object (column 1). Obata teaches that, by appropriately setting the coefficients associated with the intensity components, the display of an opaque object or a translucent object can be controlled in such a way that an opaque object can be displayed by providing a zero value output from the diffused transmitted light component and a translucent object can be displayed by providing zero value outputs from the diffused reflection light component and the specular reflection light component (column 7) wherein the background object is displayed as blurred to obtain a superior realistic display (column 6). In the case for translucent image object, the intensity of the image object is governed by the Itr component and therefore Itr determines the transparency factor. The translucency or transparency of the image object is determined by a number of the input parameters such as the diffused transmitted light coefficient and reflection coefficient of ambient light. The transparency is zero for an image object to be displayed as an opaque object after setting the coefficients associated with the intensity components or parameters. The intensity of the diffused transmitted light greatly varies in accordance with the angle theta made between the normal vector of the object surface and the light source vector as being normal to the light source surface. The angle theta is usually 0 to pi, and theta = pi signifies the case that the object surface is at a position opposite to the light source, whereas theta = 0 means the case that the object surface is in a parallel and opposed relation to the light source so that it is in the most bright condition.

However, Obata does not specifically teach the claim limitation of "assigning a transparency factor to alpha".

Obata suggests the claim limitation of "assigning a transparency factor to alpha" in column 1 and 6-7 wherein Obata teaches that, the actual display color of the image object is determined by **mixing the color of the object and the color of background**, based upon the transmissivity of the translucent object (column 1). Obata teaches that, by appropriately setting the coefficients associated with the intensity components, the display of an opaque object or a translucent object can be controlled in such a way that an opaque object can be displayed by providing a zero value output from the diffused transmitted light component and a translucent object can be displayed by providing zero value outputs from the diffused reflection light component and the specular reflection light component (column 7) wherein the background object is displayed as blurred to obtain a superior realistic display (column 6). In the case for translucent image object, the intensity of the image object is governed by the Itr component and therefore Itr determines the transparency factor. The translucency or transparency of the image object is determined by a number of the input parameters such as the diffused transmitted light coefficient and reflection coefficient of ambient light. The transparency is zero for an image object to be displayed as an opaque object after setting the coefficients associated with the intensity components or parameters. The intensity of the diffused transmitted light greatly varies in accordance with the angle theta made between the normal vector of the object surface and the light source vector as being normal to the light source surface. The angle theta is usually 0 to pi, and theta = pi signifies the case that the object surface is at a position opposite to the light source,

whereas theta = 0 means the case that the object surface is in a parallel and opposed relation to the light source so that it is in the most bright condition.

Therefore, according to the teaching of Obata, it would have been obvious to assign a transparency factor to alpha. Doing so would enable the modification of the color of the object by **mixing the color of the object and the color of background**.

Re claims 22, 26, 32, Obata discloses identifying a vector normal to a viewing surface (e.g., identifying a light vector on the same side or at the same direction of the viewing surface being normal to a viewing surface; column 6-7) and incident at an object having an object surface (the image object having an object surface; Figs. 2, 8 and 10), the vector creating an angle of incidence at the object surface (col. 6-7), and modulating the transparency of an image of the object as a function of the angle of incidence of the vector at the object surface (col. 6-7), wherein the function comprises a cosine function (col. 6-7; Figs. 2, 8 and 10). In other words, Obata discloses a method for displaying a translucent object or an opaque object on a display screen comprising a step of displaying a translucent object by calculating the color intensity. The color intensity comprises an ambient light component and the diffused transmitted light component, which is in relation to an angle made between a normal vector of the object surface and a light source vector as being at normal to the light surface, the diffused transmitted light coefficient, and the intensity value corresponding to the light source. The angle of incidence of the incident light source being over the range of 0 to pi, so that the object develops its own color intensity on the basis of the diffused transmitted light coefficient Ktr, the intensity value corresponding to the incident light from a light source. The intensity or brightness of the image

object is described by the color and/or transparency values. Obata teaches that, the actual display color of the image object is determined by **mixing the color of the object and the color of background**, based upon the transmissivity of the translucent object (column 1). Obata teaches that, by appropriately setting the coefficients associated with the intensity components, the display of an opaque object or a translucent object can be controlled in such a way that an opaque object can be displayed by providing a zero value output from the diffused transmitted light component and a translucent object can be displayed by providing zero value outputs from the diffused reflection light component and the specular reflection light component (column 7) wherein the background object is displayed as blurred to obtain a superior realistic display (column 6). In the case for translucent image object, the intensity of the image object is governed by the Itr component and therefore Itr determines the transparency factor. The translucency or transparency of the image object is determined by a number of the input parameters such as the diffused transmitted light coefficient and reflection coefficient of ambient light. The transparency is zero for an image object to be displayed as an opaque object after setting the coefficients associated with the intensity components or parameters. The intensity of the diffused transmitted light greatly varies in accordance with the angle theta made between the normal vector of the object surface and the light source vector as being normal to the light source surface. The angle theta is usually 0 to pi, and theta = pi signifies the case that the object surface is at a position opposite to the light source, whereas theta = 0 means the case that the object surface is in a parallel and opposed relation to the light source so that it is in the most bright condition.

Re claims 24, 28, 34, and 37, the limitation of claims 24, 28, 34, and 37 are identical to claims 22, 26, and 32 above. Therefore, claim 26 is treated with respect to grounds as set forth

for claims 22, 26, and 32 above except for the function comprises a non-linear function (col. 6-7). In other words, Obata discloses a cosine function of theta. The cosine function is a non-linear function.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (703) 605-1213. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jcw

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600